

# Service Hints



TH-P50U30A

## Plasma Television

<PDP 2011 Model>

TH-P50/42U30A

TH-P50/42X30A

TH-P50/42U30Z

TH-P50/42X30Z

## Troubleshooting Guide

- Ver 1.0-

This service hints is published for technicians and engineers for repair. And it gives you the information how to judge the defective board of PDP. In the future, we will improve the contents for more easy diagnostic and troubleshooting.

Please file and use this Service Hints together with the main service manual and other publications related to models.

### WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.



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# **1. 2011 PDP Line up & Feature Comparison (2D model)**

# 1. 2011 PDP Line up & Feature Comparison

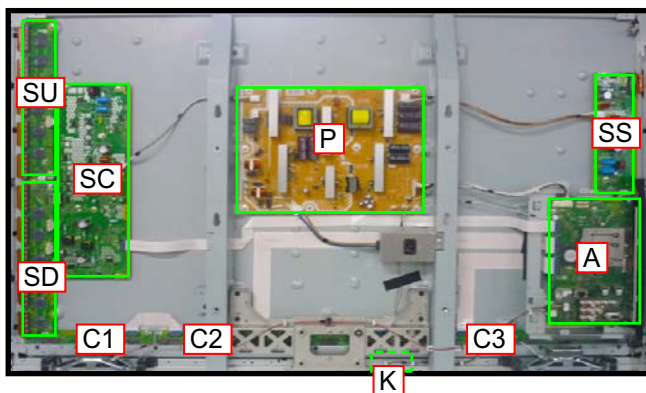
		U30 Series	X30 Series
			
Picture	Size	50/42	50/42
	Full HD 3D	—	—
	Moving Picture Resolution	900 lines	720 lines
	THX Mode	—	—
	ISFccc	—	—
	3D Colour Management	—	—
Sound	Speakers	Full-range x 2 (L, R)	Full-range x 2 (L, R)
Networking	HDMI Input	3 (1 side, 2 rear)	3 (1 side, 2 rear)
	Support Feature	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)
	USB	2 (side)	2 (side)
	USB HDD Recording	—	—
	SD Card Recording	—	—
	PC Input	Y	Y
	VIERA Connect (IPTV)	—	—
	Wireless LAN Adaptor	WiFi Ready	WiFi Ready
Others	DLNA	Y	Y
	Swivel Angle	—	—
		One-Sheet-of-Glass Design	—

## **2. PCB Location & Function (2D model)**

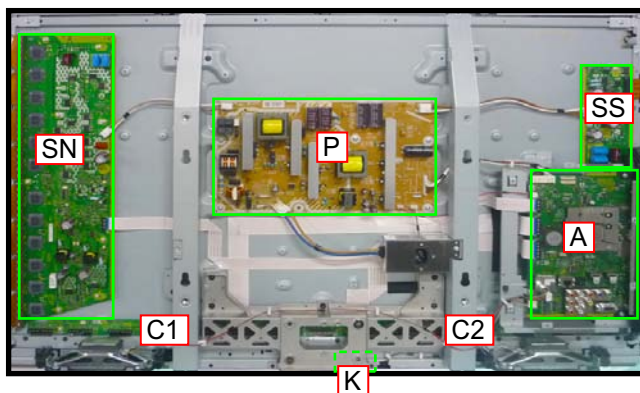
## 2. PCB Location & Function

## U30 Series

TH-P50U30A / Z



TH-P42U30A / Z



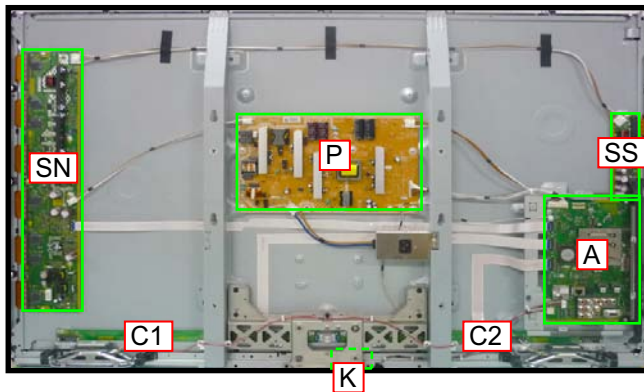
Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00009
A	Main AV input, processing	TZTNP01NKUA (for TH-P50U30A), TZTNP01NDUZ (for TH-P50U30Z)
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TNPA5318
C2	Data Driver (Lower Center)	TNPA5319
C3	Data Driver (Lower Left)	TNPA5320
SC	Scan Drive	TXNSC11JGK50
SS	Sustain Drive	TXNSS11JGK50
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU11JGK50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD11JGK50
—	—	—

Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00008
A	Main AV input, processing	TZTNP01NLUA (for TH-P42U30A), TZTNP01NEUZ (for TH-P42U30Z)
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TNPA5314
C2	Data Driver (Lower Left)	TXNC211FHK42
—	—	—
—	—	—
SS	Sustain Drive	TXNSS11FHK42
—	—	—
—	—	—
SN	Scan Drive	TXNSN11FHK42

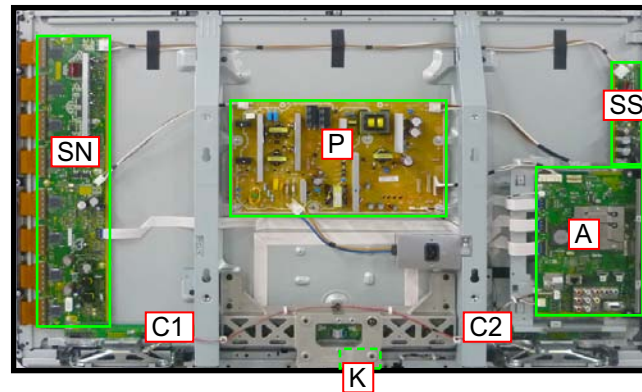
## 2. PCB Location & Function

### X30 Series

TH-P50X30A / Z



TH-P42X30A / Z



Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00007
A	Main AV input, processing	TZTNP01NMUA (for TH-P50X30A), TZTNP01NFUZ (for TH-P50X30Z)
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TXNC111MGK50
C2	Data Driver (Lower Left)	TXNC211MGK50
SS	Sustain Drive	TXNSS11MGK50
SN	Scan Drive	TXNSN11MGK50

Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00006
A	Main AV input, processing	TZTNP01NNUA (for TH-P42X30A), TZTNP01NGUZ (for TH-P42X30Z)
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TXNC111HHK42
C2	Data Driver (Lower Left)	TXNC211HHK42
SS	Sustain Drive	TXNSS11HHK42
SN	Scan Drive	TXNSN11HHK42

### **3. PCB List (2D model)**



### 3. PCB List

	U30 series				X30 series			
Board	TH-P50U30A	TH-P50U30Z	TH-P42U30A	TH-P42U30Z	TH-P50X30A	TH-P50X30Z	TH-P42X30A	TH-P42X30Z
P	N0AE5JK00009	N0AE5JK00009	N0AE5JK00008	N0AE5JK00008	N0AE5JK00007	N0AE5JK00007	N0AE5JK00006	N0AE5JK00006
A	TZTNP01NKUA	TZTNP01NDUZ	TZTNP01NLUA	TZTNP01NEUZ	TZTNP01NMUA	TZTNP01NFUZ	TZTNP01NNUA	TZTNP01NGUZ
K	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42
C1	TNPA5318	TNPA5318	TNPA5314	TNPA5314	TXNC111MGK50	TXNC111MGK50	TXNC111HHK42	TXNC111HHK42
C2	TNPA5319	TNPA5319	TXNC211FHK42	TXNC211FHK42	TXNC211MGK50	TXNC211MGK50	TXNC211HHK42	TXNC211HHK42
C3	TNPA5320	TNPA5320	----	----	----	----	----	----
SC	TXNSC11JGK50	TXNSC11JGK50	----	----	----	----	----	----
SS	TXNSS11JGK50	TXNSS11JGK50	TXNSS11FHK42	TXNSS11FHK42	TXNSS11MGK50	TXNSS11MGK50	TXNSS11HHK42	TXNSS11HHK42
SU	TXNSU11JGK50	TXNSU11JGK50	----	----	----	----	----	----
SD	TXNSD11JGK50	TXNSD11JGK50	----	----	----	----	----	----
SN	----	----	TXNSN11FHK42	TXNSN11FHK42	TXNSN11MGK50	TXNSN11MGK50	TXNSN11HHK42	TXNSN11HHK42

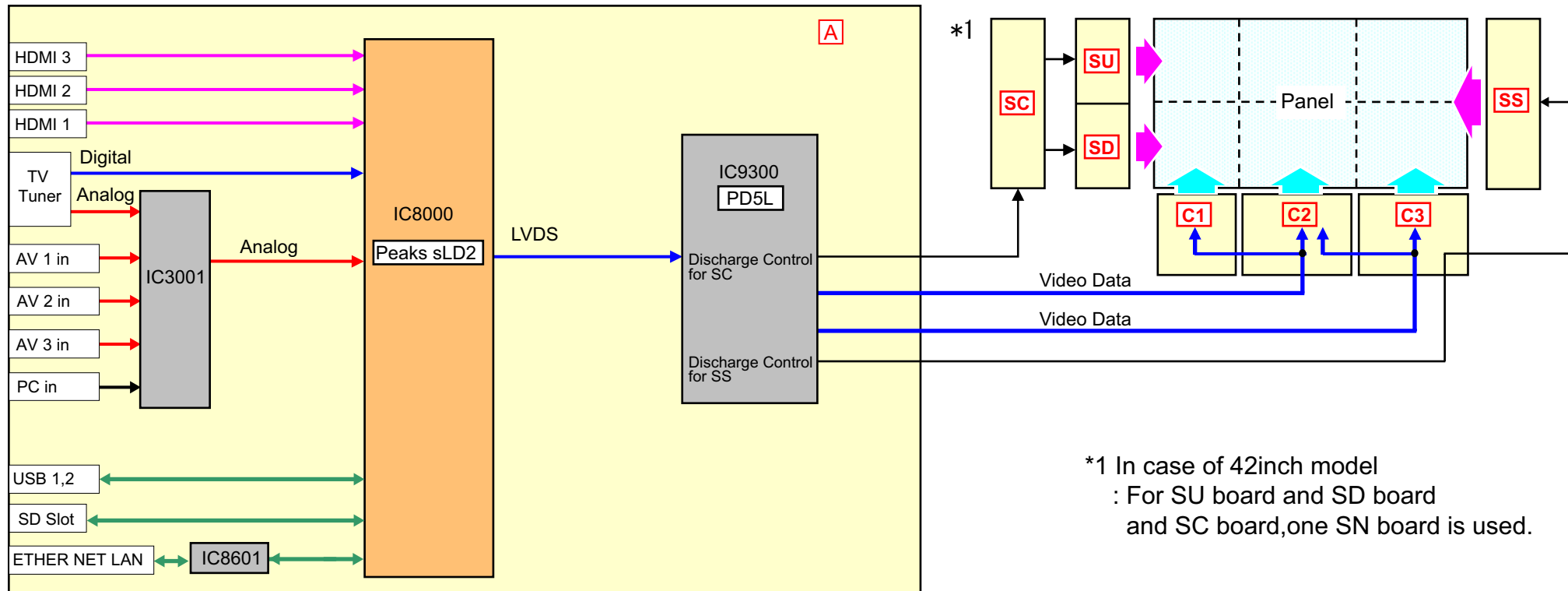
## **4. Block Diagram (2D Model)**

## 4.Block Diagram

## Signal Processing Circuit (1) U30 series

<PCB Function>

[e.g.TH-P50U30A]



**IC3001**  
: Video Switch  
(Audio Switch)

**IC8601**  
: ETHER NET I/F

**IC8000**  
: Peaks sLD2  
(Digital Video Processor)

**IC9300**  
: PD5L  
[ Sub Field Processor,  
Discharge Control  
Plasma AI ]

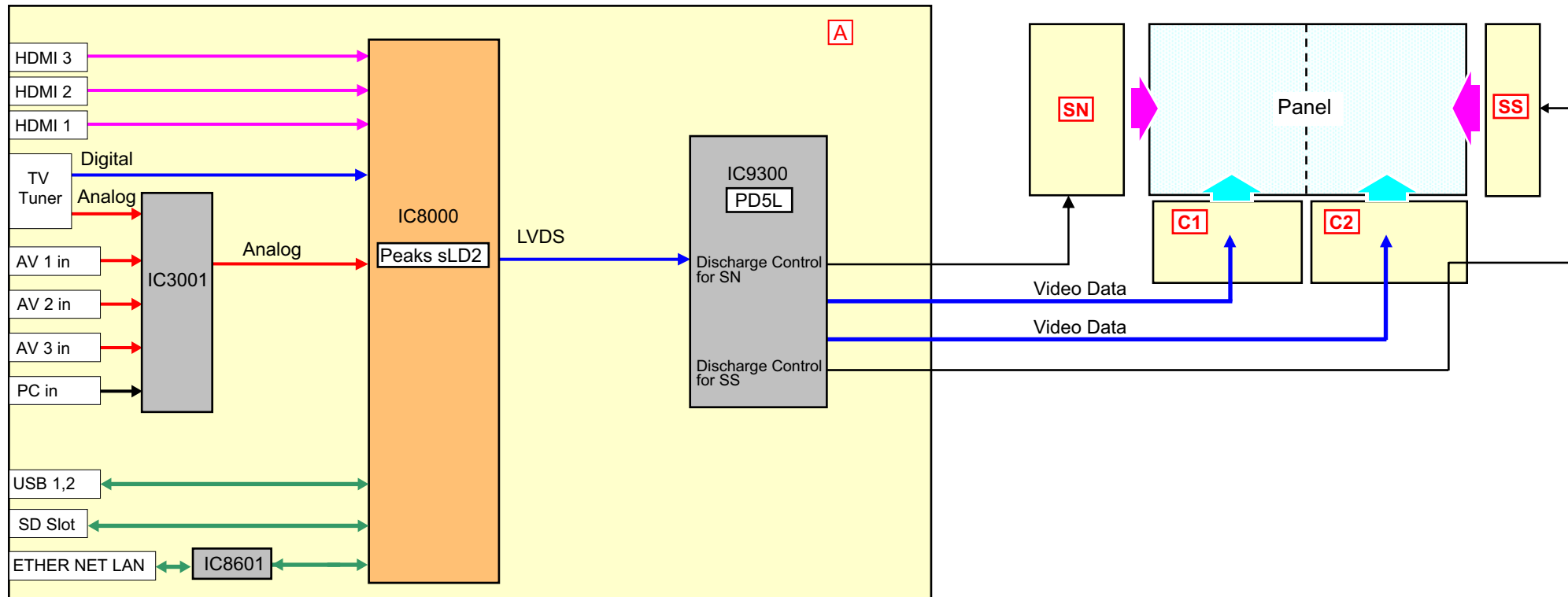
\*1 In case of 42inch model  
: For SU board and SD board  
and SC board,one SN board is used.

## 4. Block Diagram

## Signal Processing Circuit (2) X30 series

<PCB Function>

[e.g. TH-P50X30A]



**IC3001**  
: Video Switch  
(Audio Switch)

**IC8601**  
: ETHER NET I/F

**IC8000**  
: Peaks sLD2  
(Digital Video Processor)

**IC9300**  
: PD5L  
[ Sub Field Processor,  
Discharge Control  
Plasma AI ]

## **5. Troubleshooting (2D model)**



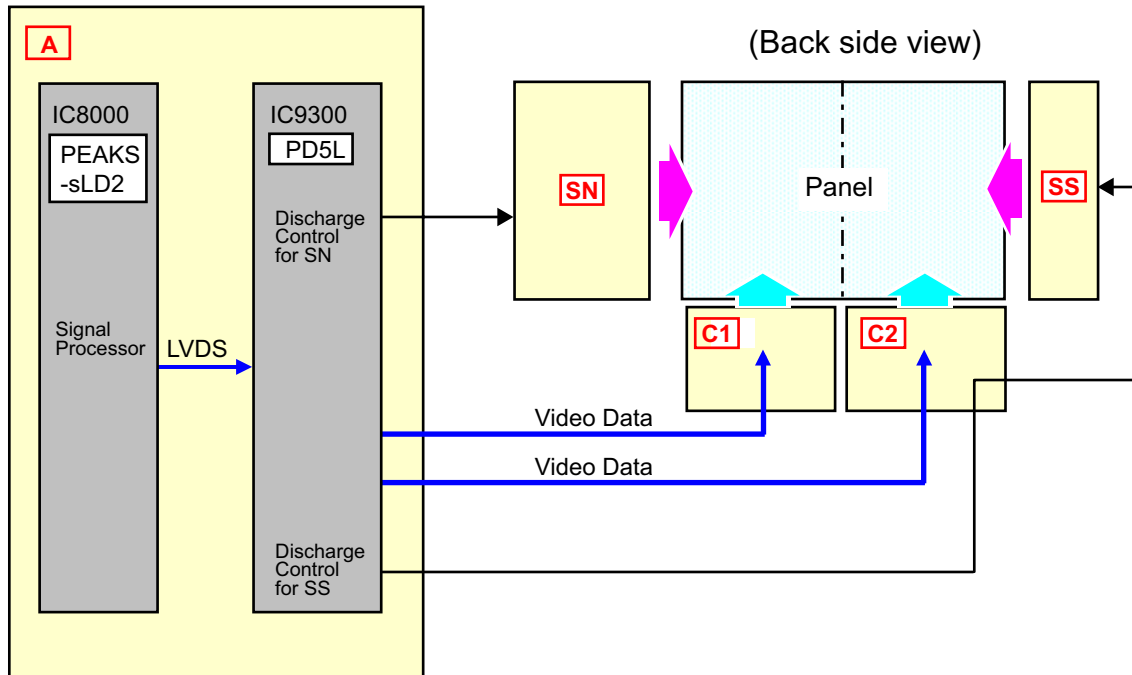
## 5.Troubleshooting for picture trouble

## Relation of board and display area (2/2)

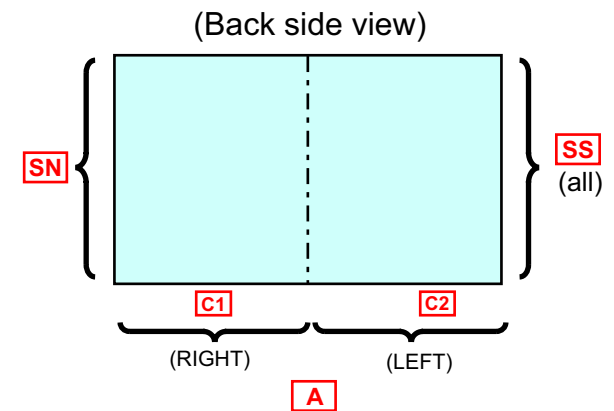
You know the possible defective board by picture trouble area.

[In case of X30 series]  
(HD models)

<Display device block diagram>



<Relation of defective board and picture trouble area >



## 5.Troubleshooting for picture trouble

## Picture trouble [diagnosis of vertical line]

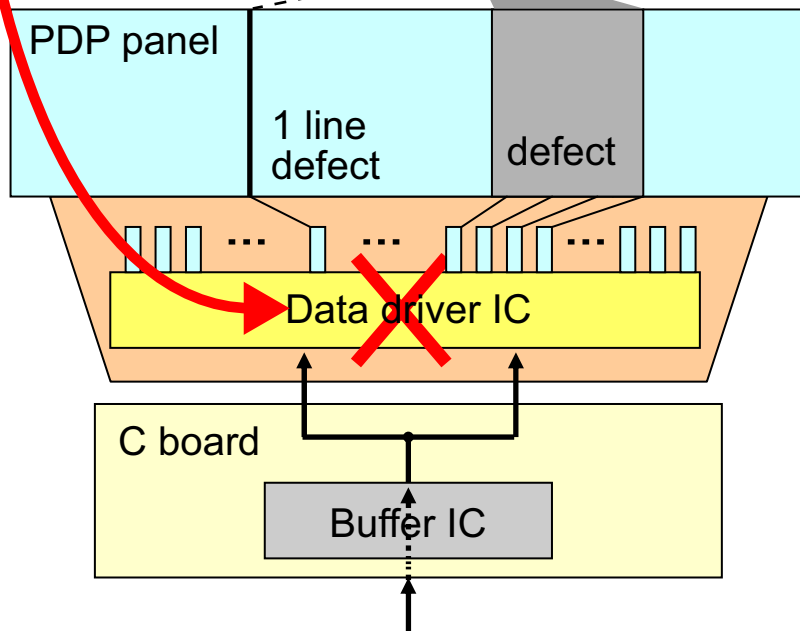
[ In case of U30 / X30 series ]

PDP panel defective (Data driver IC defective)

Width is narrower than FPC

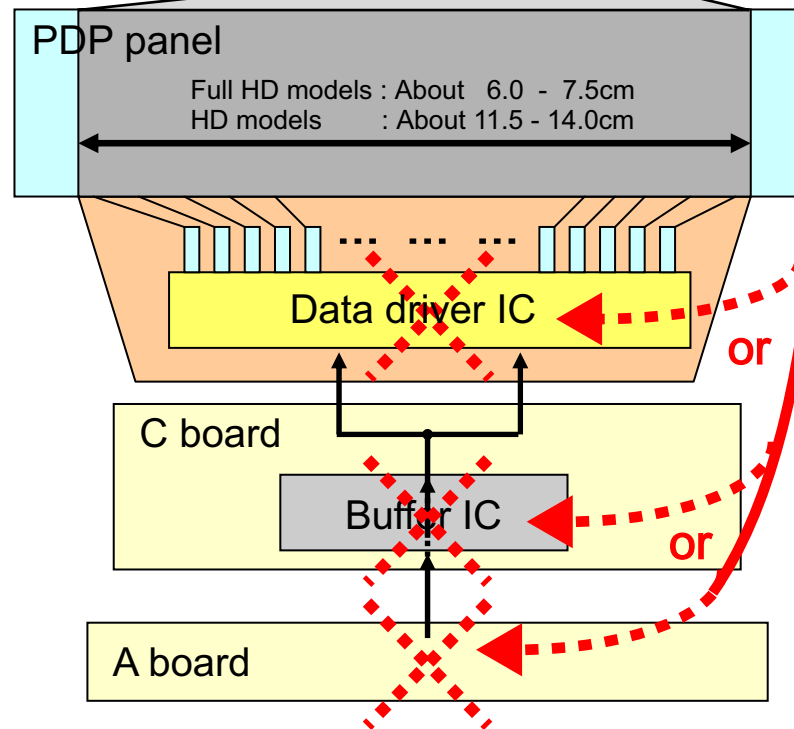


Data driver IC defect= PDP panel defect



Data driver IC or C or A board defective

Width is same as FPC

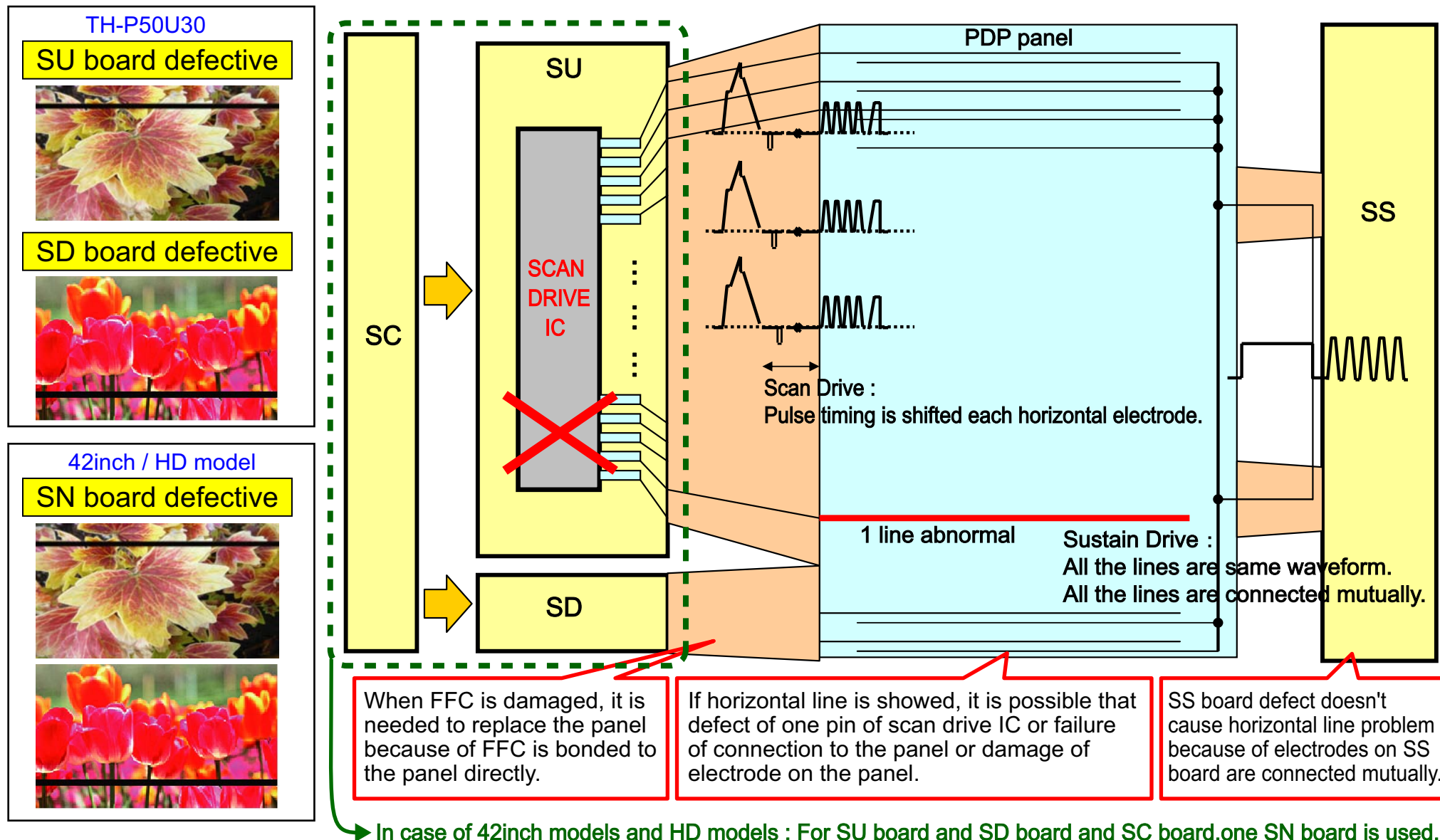




## 5.Troubleshooting for picture trouble

### Picture trouble [diagnosis of horizontal line]

[ In case of U30 / X30 series ]



## 5.Troubleshooting for picture trouble

## Picture trouble [Function of diagnosis]

### < Mirror function >

Mirror Function : Picture can be reversed left and right or up and down.

For vertical lines problems, this feature can help to determine if the problem is the A board or the panel.

If the position of the line/lines changes when performing this function, the A board is possibly defective.

The rear cover does not have to be removed to do this.

To enter the Mirror Function.

From the Service Mode Menu, Press 1 or 2 to select "OPTION".

Press 3 or 4 to select "MIRROR".

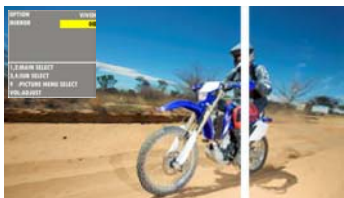
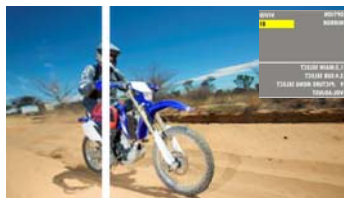
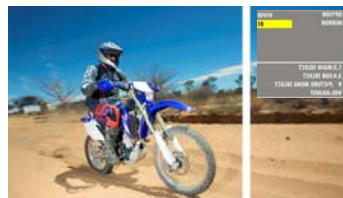

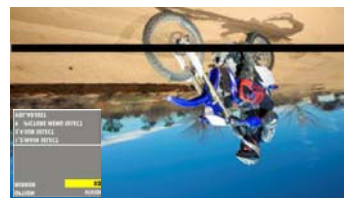

Press the VOLUME up or down button to change the Mirror's data.

Data = 00 Default data (Mirror function is off).

Data = 01 Picture is reversed left and right.

Data = 02 Picture is reversed up and down.

<How to diagnose by using "Mirror function">

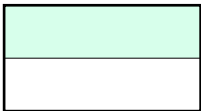

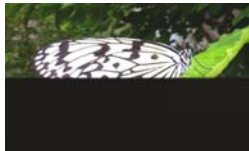

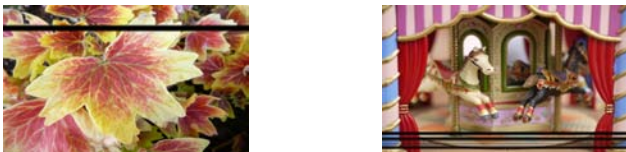
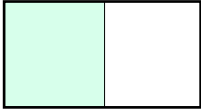



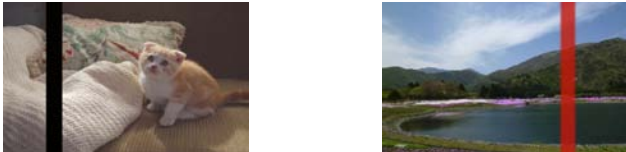

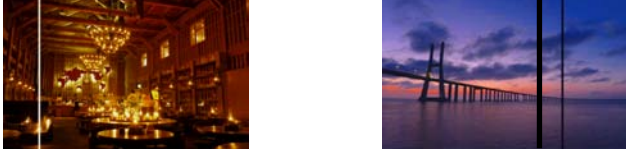

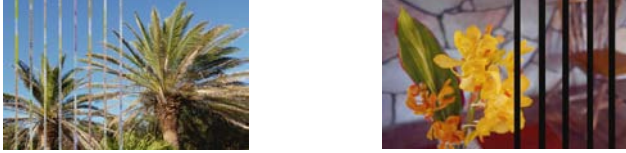
Vertical Line	Data : 00	Data : 01	
		the picture & line : reverse	only the picture : reverse
			
		Defective Block : A board	Defective Block : Panel or C board
Horizontal Line	Data : 00	Data : 02	
		the picture & line : reverse	only the picture : reverse
			
		Defective Block : A board	Defective Block : Panel or SD board *

\* In case of 42inch models and HD models : For SU board and SD board and SC board,one SN board is used.

## 5.Troubleshooting for picture trouble

## Summary of picture trouble

< Some part of screen : U30 / X30 series >

Symptom	Actual symptom	Defective board
Trouble at Upper or Lower half 	 	<b>TH-P50U30 : SU / SD 42inch and HD model : SN</b>
Horizontal line (Upper or Lower side) 		<b>TH-P50U30 : SU / SD 42inch and HD model : SN or panel</b>
Trouble at Left or Right half (TH-P50U30 : Left or Center or Right part) 	P42U30 and HD model  P50U30 	<b>TH-P50U30 : C1-C3 42inch and HD model : C1,C2</b>
Vertical line (Width is same as FPC) 		<b>C or A or PDP panel</b>
Vertical line (Width is narrower than FPC) 		<b>PDP panel</b>
Regular bar 		<b>A</b>

## 5.Troubleshooting for picture trouble

## Diagnosis by Test Pattern

### <Model>

U30, X30 series

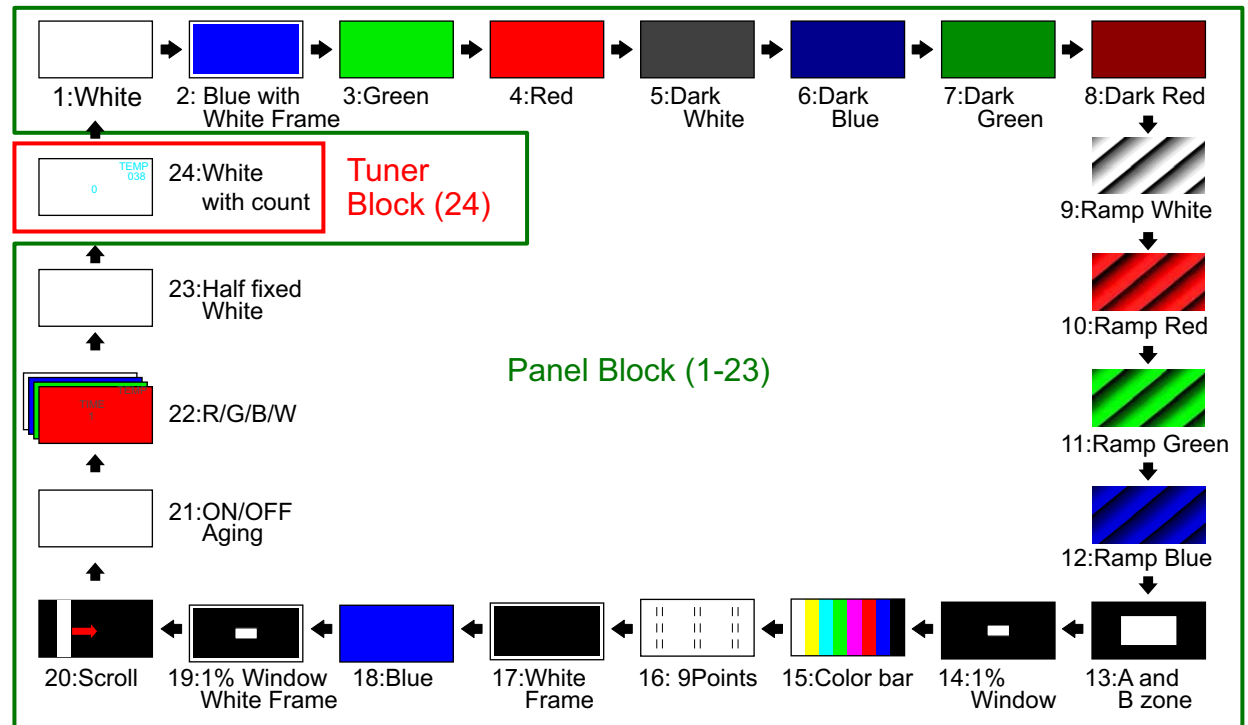
### <Symptom>

Picture Noise, Full Vertical Line, Abnormal color

### <How to enter the Test Pattern>

1. Press the "**VOLUME -**" on the TV set and push "**i**" button of remote controller 3 times at the same time.
2. After this procedure, you can enter "Service Mode" and select "**AGING**", then "Test pattern" will appear.
3. Push "3" button of Remote Controller to select the test pattern mode to forward.
4. Push "4" button of Remote Controller to select the test pattern mode to reverse.

### <Test Pattern (Normal)>



### <Diagnosis>

How to diagnose by using test pattern

Abnormal picture  
(Picture Noise, Full Vertical Line, Abnormal color)




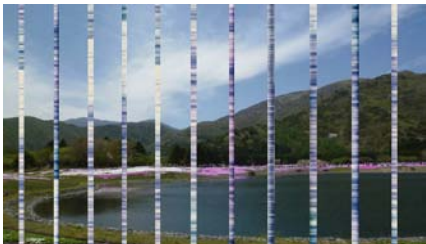



Test pattern (1-23)	Defective Block (Board)
Abnormal	Panel Block (A Board or Panel)
Normal	Tuner Block (A Board)

No picture

Test pattern	Defective Block (Board)
No picture	Panel Block (A Board or Panel)
O.K	Tuner Block (A Board)



### < All area of screen >

Symptom	Actual symptom	Defective board
Irregular Color	 	<div>A board</div>
All vertical line	 	<div>A board</div>
Abnormal electric discharge	  	<div>                     in case of P50U30                      SC / SS board                       in case of P42U30                      and HD model                      SN / SS board                 </div>

## **6. No Power Troubleshooting (When LED doesn't Blink)**

[ Model ]

TH-P50/42U30A, TH-P50/42X30A

TH-P50/42U30Z, TH-P50/42X30Z

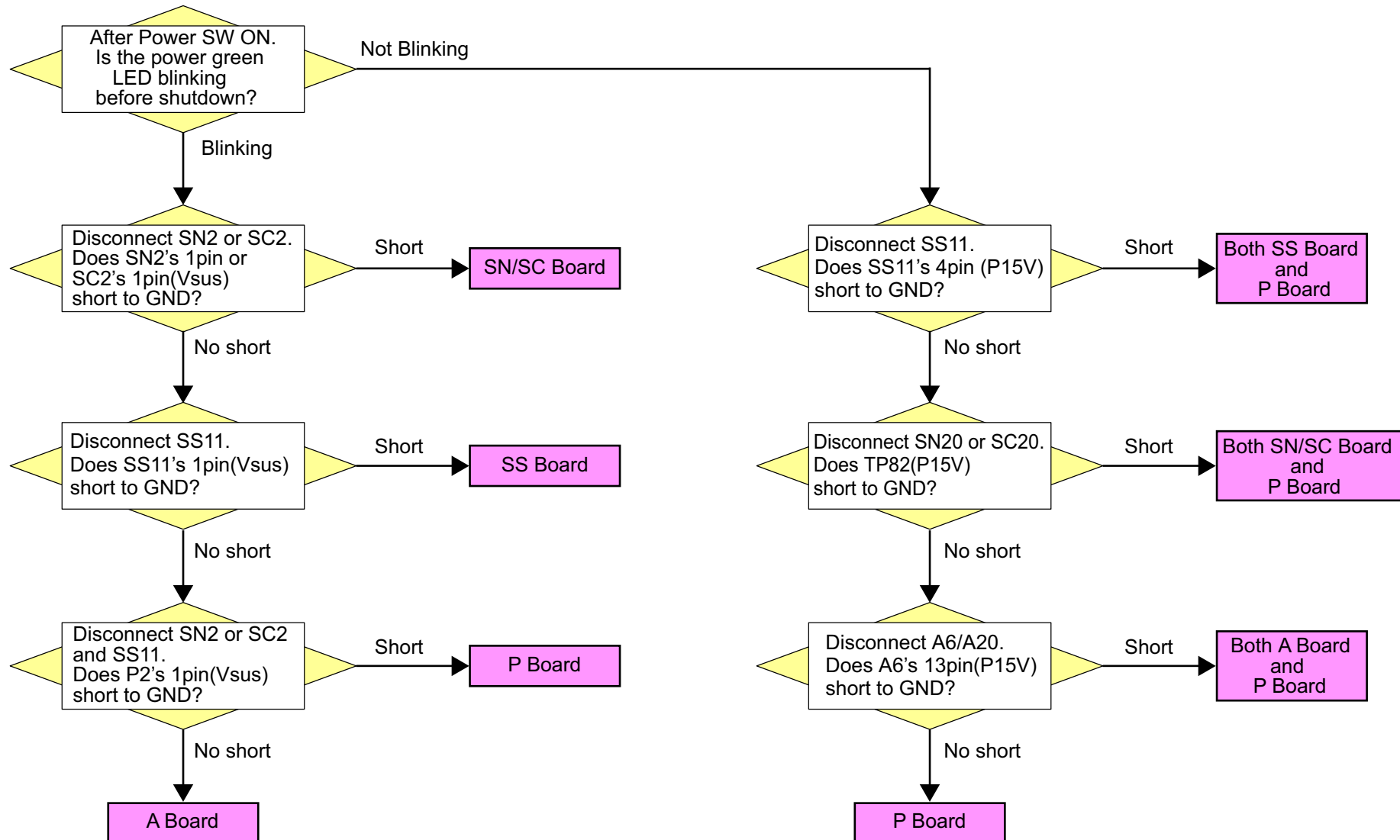
	Power LED error code	Contents	Check points
1	Power LED is Off (No picture/No sound)	P-board abnormal Vsus:voltage down P15V:voltage down F15V:voltage down	P-board SN/SC-board SS-board A-board
2	Power LED is green (No picture/No sound)	P15V:voltage down	P-board SN/SC-board SS-board A-board

Troubleshooting Flowcharts  
: refer to 24 page, 25 page

[ Model ]

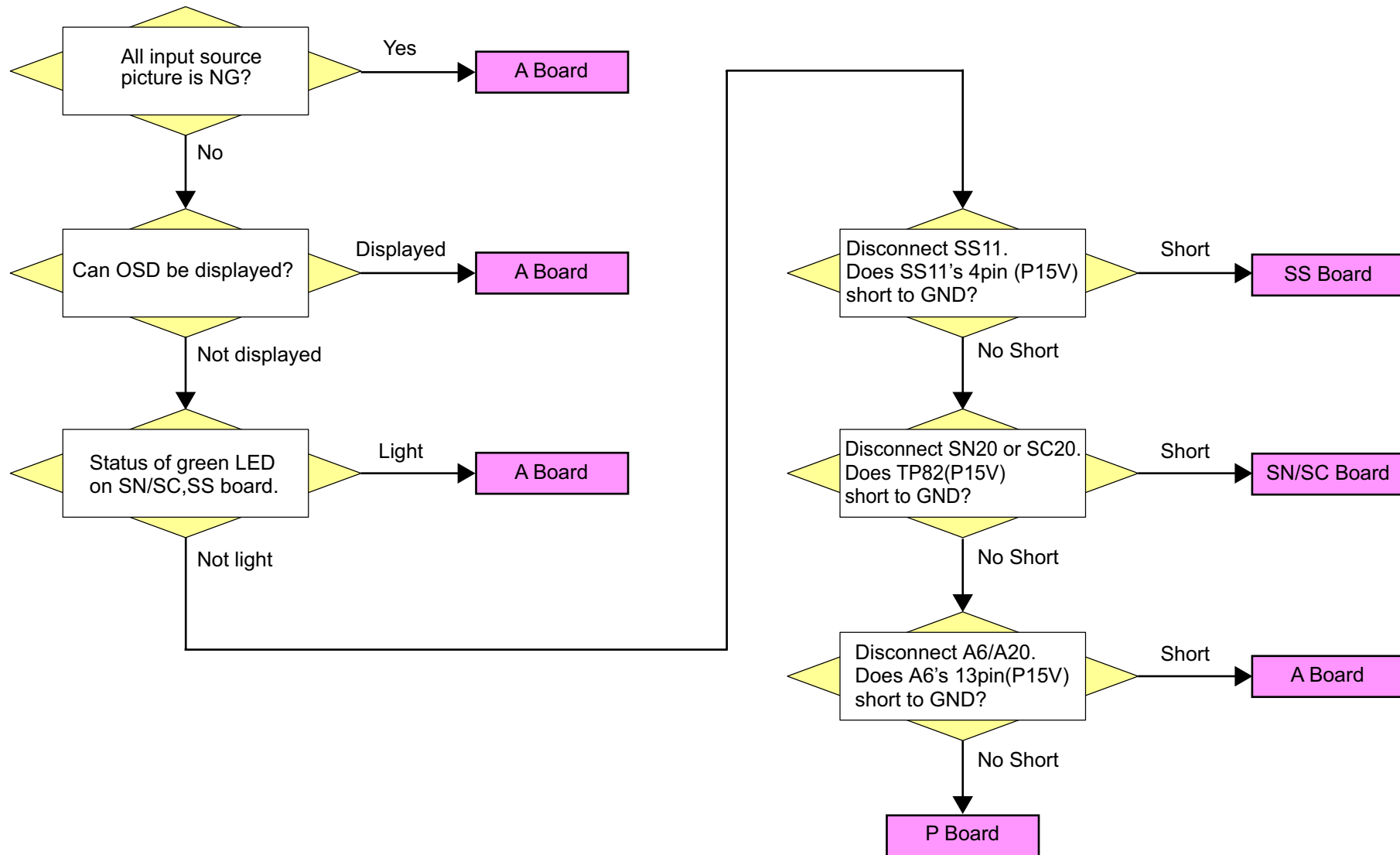
TH-P50/42U30A, TH-P50/42X30A, TH-P50/42U30Z, TH-P50/42X30Z

< 1. Power LED is Off : No Picture, No Sound >





## &lt; 2. Power LED is green : No Picture, No Sound &gt;



## **7. Case Example of Picture Trouble**

## 7.Case Example of Picture Trouble

### [1] Model : 2011 model

### [2] Symptom : Rainbow vertical bar

### [3] Defective parts :

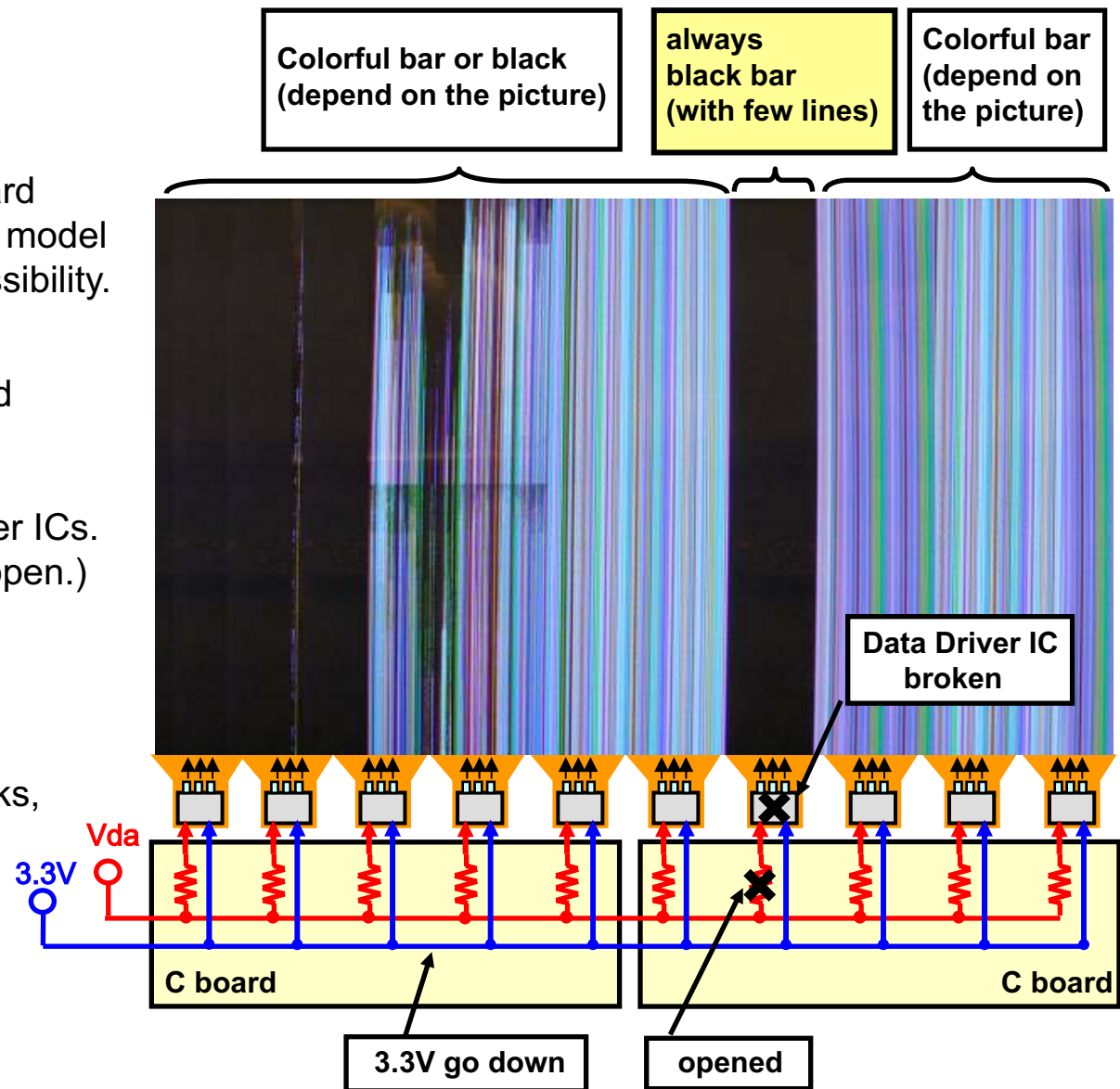
This symptom is very likely to be the A board defect for the previous model, but for 2011 model the Panel and C board defect is a high possibility.

### [4] Summary :

If one of the Data Driver IC is defective and 3.3V go down, the other Data Driver ICs don't work correctly.  
Because 3.3V is common for all Data Driver ICs.  
(Vda line is isolated due to resistor being open.)

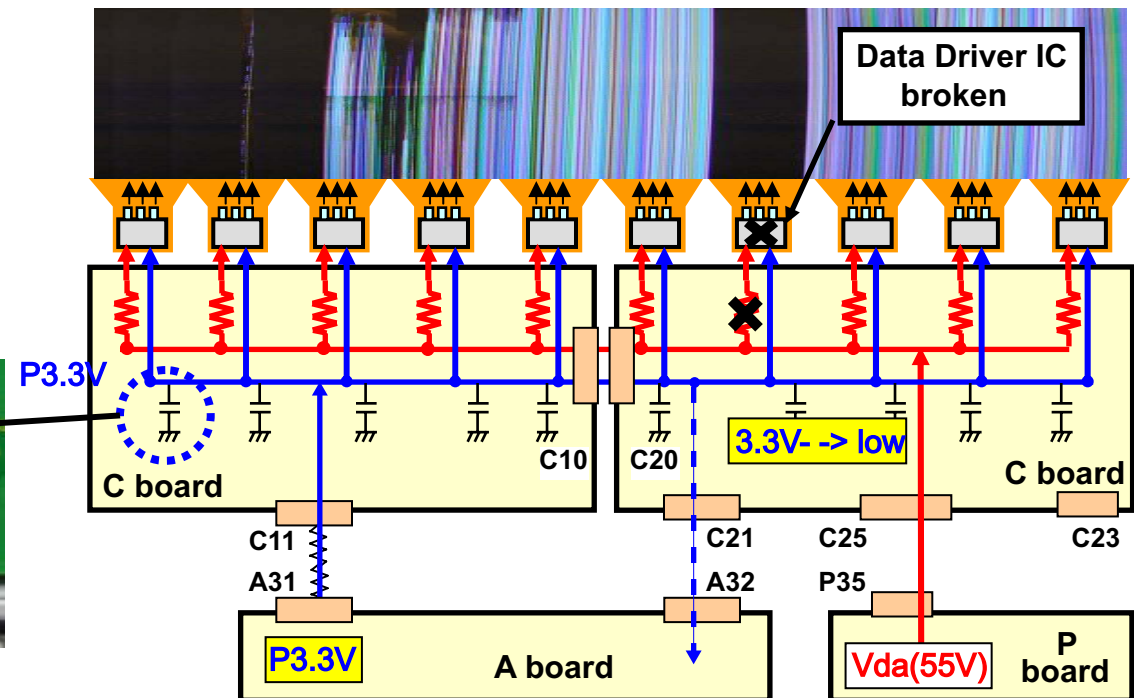
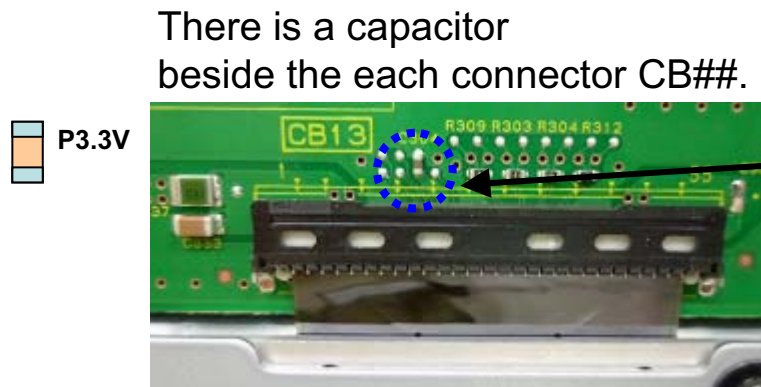
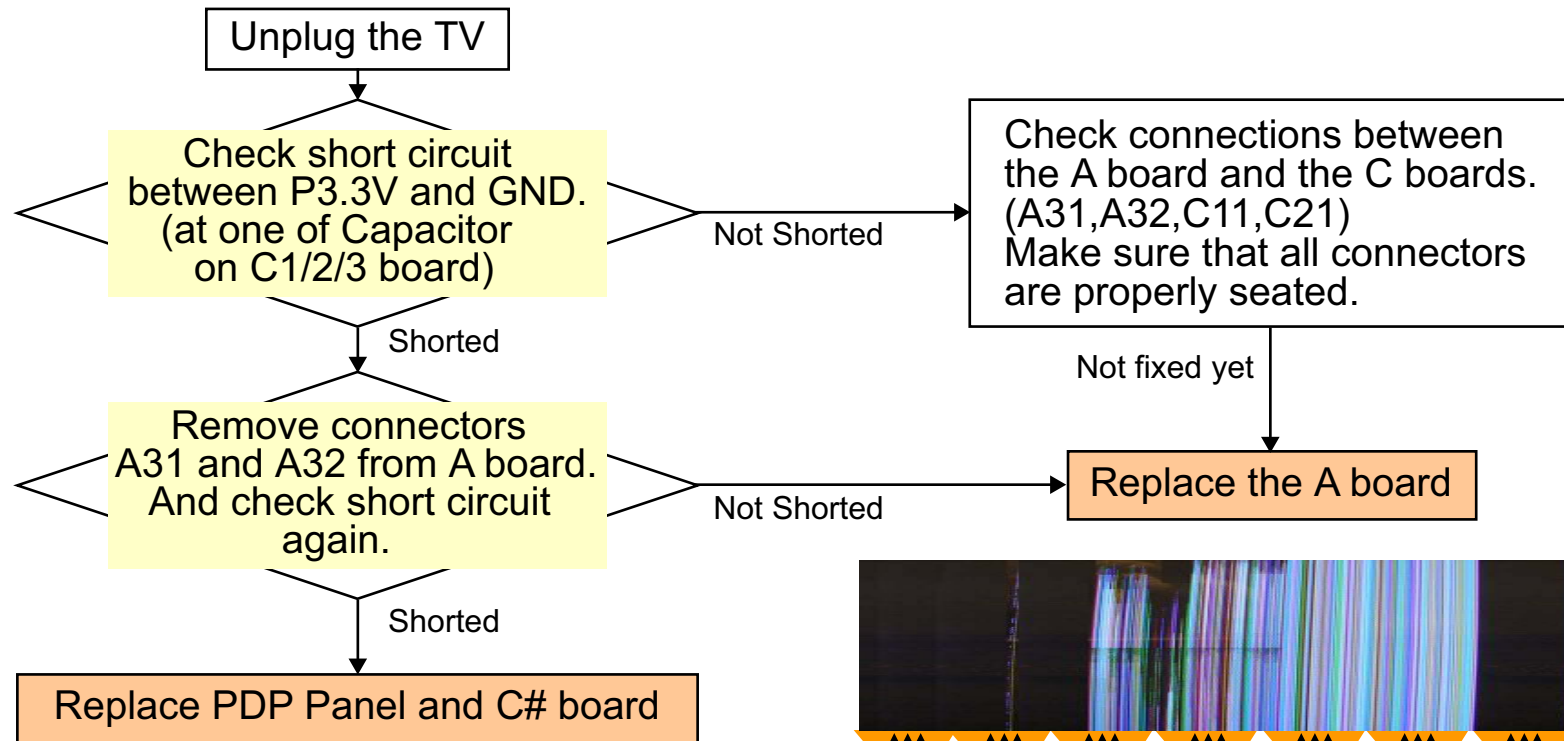
### [5] Check point ( Trouble shoot ) :

Check by displaying some images.  
If the position (length) of colorful bars change and there are some black bar blocks, the data driver IC is defective.  
If there is no black bar block, check the connection of cables between A and C board.  
If trouble still persists, the A board could be defective.



## 7.Case Example of Picture Trouble

### [6] Detail Troubleshoot : Short check of the P3.3V line



## 7.Case Example of Picture Trouble

### [7] Symptom example (another image)

Normal Image



Defective unit

